

Amendments to the Claims

1. (Currently Amended) - Dual-band dual-polarized antenna array operating at a lower frequency f_1 and at a higher frequency f_2 , the ratio f_2/f_1 ~~bein~~ being smaller than 1.5, ~~characterized by the physical arrangement of the antenna elements, said arrangement comprising~~ wherein the antenna elements are arranged as follows:

- (a) a first row of antenna elements aligned along a first vertical axis, said first row of antenna elements being dual-polarized antenna elements operating at said higher frequency f_2 , the spacing between said elements being smaller than the size of the central wavelength at said higher frequency f_2
- (b) a second row of antenna elements aligned along a second vertical axis, said second row of antenna elements being dual-polarized antenna elements operating at said lower frequency f_1 , said second row of antenna elements being spaced the same distance as ~~the~~ said first row of antenna elements in the adjacent row operating at frequency f_2 , said second vertical axis ~~being placed~~ located substantially parallel to said first vertical axis at a distance between 0.1 and 1.2 times the longer operating wavelength,

and wherein the positions of ~~the~~ said first row of antenna elements operating at frequency f_2 are interleaved in the vertical direction with respect to the vertical positions of ~~the~~ said second row of antenna elements operating at frequency f_1 ~~in such a way so that the distance among elements is maximized to minimize the inter-band and intra-band electromagnetic coupling among radiating elements.~~

2. (Currently Amended) - Dual-band dual-polarized antenna array according to claim 1 wherein at least one element operating at ~~any~~ either of the two frequencies f_1 and f_2 is shifted horizontally from its corresponding vertical axis at a distance smaller than a 70% of the longer operating wavelength.

3. (Currently Amended) - Dual-band dual-polarized antenna array according to claim 1 or 2 wherein at least one of said two axes is tilted at an angle smaller than 45° with respect to the vertical direction.

4. (Currently Amended) - Dual-band dual-polarized antenna array according to claim ~~1,2~~
~~or 3~~ 1 or 2 wherein the size of the resonant antenna elements is smaller than a one half of the free-space
operating wavelength ~~to minimize the electromagnetic coupling between them.~~

5. (Currently Amended) - Dual-band dual-polarized antenna array according to claim
~~1,2,3 or 4~~ 1 or 2 wherein the antenna elements are ~~within the class of~~ space-filling antennas.

6. (Currently Amended) - Dual-band dual-polarized antenna array according to claim
~~1,2,3,4 or 5~~ 1 or 2 wherein the antenna elements comprise at least a micro-strip patch element with ~~an~~ a
space-filling perimeter.

7. (Currently Amended) - Dual-band dual-polarized antenna array according to claim
~~1,2,3,4,5 or 6~~ 1 or 2 wherein the operating frequencies f_1 and f_2 are ~~chosen to fall within~~ selected from
the group consisting of the GSM1800 (1710-1880 MHz) and UMTS frequency bands (1900-2170 MHz)
frequency bands, wherein the spacing between elements at each of said vertical axis axes is chosen
between 100 mm and 165 mm, wherein the spacing between said two vertical axis axes is at least 40 mm
and wherein the antenna elements are mounted upon a substantially rectangular conducting ground-plane,
said ground-plane being at least 140 mm wide in the horizontal direction.

8. (Currently Amended) - Dual-band dual-polarized antenna array according to claim
~~1,2,3,4,5 or 6~~ 1 or 2 wherein the operating frequencies f_1 and f_2 ~~are chosen to be any combination within~~
~~the set of the~~ are selected from the group of bands consisting of: GSM1800 or DCS (1710-1880MHz);
UMTS (1900-2170 MHz), PCS1900 (1850-1990 MHz) and DECT (1880-1900) or any combination
thereof.

9. (Currently Amended) - Dual-band dual-polarized antenna ~~for operation within the~~
~~GSM1800 and UMTS bands~~ according to claim 7, wherein the antenna features a different electrical
down-tilt at each of the two bands and wherein the antenna is used in a base-station of a cellular system
network to provide coverage in said two bands.

10. (Currently Amended) - Dual-band dual-polarized antenna array according to claim
~~1,2,3,4,5 or 6~~ 1 or 2 wherein the operating frequencies f_1 and f_2 ~~are chosen to be any combination within~~

~~the set of the~~ are selected from the group of bands consisting of: GSM900 (890-960 MHz); US Cellular/Qualcomm-CDMA (824-894 MHz); TACS/ ETACS (870-960); ID54 (824-894MHz); CT2 (864-868 MHz) and any combination thereof.

11. (Currently Amended) - Dual-band dual-polarized antenna array according to ~~any of the preceding claims~~ claim 1 or 2 wherein the spacing between elements at said first frequency f1 can differ from the spacing between elements at second frequency f2 up to a 20%.